AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0008] with the following paragraph:

[0008] Accordingly, there is a need for a cladding material that overcomes the disadvantages described above, i.e., ~~in~~ a material that has a low Young's modulus, has good mechanical stability, and at the same time is hermetic or hydrophobic, so as to prevent moisture from penetrating into the fiber.

Please replace paragraph [00011] with the following paragraph:

[00011] Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structures particularly pointed out in the written description and claims hereof as well as the appended drawings.

Please replace paragraph [00021] with the following paragraph:

[00021] Figure 1 is a schematic for purposes of quantitatively illustrating the advantages of small-radius, high-Young's-modulus structures;

Please replace paragraph [00077] with the following paragraph:

[00077] Another option is the use of different types of nano-particles within the same filler material. One ~~possibility of the use of~~ embodiment employs hydrophobic silica particles in combination with alumina, ceramic or metallic oxide, for example, titanium oxide (TiO_2) particles. In fact, any metallic oxide (magnesium oxide, e.g.) can

also be used as hydrophilic nano-solids.

Please replace paragraph [00078] with the following paragraph:

[00078] Such a combination will have different viscoelastic properties from a cladding layer that only has one type of nano-particles (for example, only silica glass nano-particles). One of the advantages of the nano-particle cladding layer 110, as discussed above, lies in the fact that the cladding layer 110 of the present invention can act as both a cladding and a coating, with the nano-particles together with the filler functioning as both a cladding and a coating of a conventional fiber structure. The combination of metal, metal oxides and silica nano-particles ~~allows to get the~~ permits one to attain predetermined optical characteristics of the boundary between fiber core surface and covering. ~~It~~ This improves ~~an~~ the optical efficiency of the fiber. The desired properties of the contact layer may ~~been~~ be achieved through thermal, electromagnetic or optical treatment.

Please replace paragraph [00079] with the following paragraph:

[00079] Another ~~option~~ embodiment employs ~~is~~ the use of two ~~layers~~ regions of dissimilar nano-particles within the same cladding layer 110, as illustrated in Figure 5. The inner ~~layer~~ region 115, close to the fiber core 100, may be comprised of hydrophilic metallic oxide nano-particles (or hydrophilic molybdenum disulfide), while the outer ~~layer~~ region 116 may be comprised of hydrophobic silica nano-particles. Here, other possible materials for nano-particles include molybdenum disulfide for use as the inner ~~layer~~ region 115 with good adhesion to the silica glass core surface and very small forces

of friction. Hydrophobic particles of Teflon or other synthetics may be used as an outer ~~layer~~ region 116. Alternatively, Teflon may be used as a filler itself. Water cannot enter ~~to~~ pores of hydrophobic materials if the size of the pores is less than 0.1 microns at pressure not more than 20.0 MPa. This allows use of hydrophobic particles as a filler while providing a very small contact surface in contact with the fiber core while preserving optimal properties of the cladding.

Please replace paragraph [00084] with the following paragraph:

[00084] As illustrated in Figure 3, the fiber core 100 is surrounded by nano-particles in the cladding layer 110, and is in turn optionally surrounded by a layer of an outer cladding 120 that comprises a highly viscose polymer (for example acetate polymers based on acetic acid (alpha or octyl-cyano-acrylates, chlorinated naphthalene and other compounds that are insoluble in water and acid solutions), or any of a number of polymers commonly used for protective overclad layer, e.g., BORDEN™ manufactured by Borden Chemical, Inc.

Please replace paragraph [00085] with the following paragraph:

[00085] As noted above, the cladding material is preferably heterogeneous, and includes inorganic solid nano-particles with a high Young's modulus, as well as (optionally) a liquid or a quasi-liquid inorganic filler. If the nano-particles are comprised of silica, they can be either hydrophilic (regular silica) or hydrophobic (modified (methylated) silica, ~~with~~ having methyl groups (CH_3) on its surface). The filler material is normally hydrophobic.

Please replace paragraph [00087] with the following paragraph:

[00087] In another embodiment, an optical fiber core has hydrophobic surface that is covered by "dry lubrication", for example, molybdenum disulfide with nano-powder of aluminum and hydrophobic silica nano-particles. The molybdenum disulfide and silica nano-particles form a porous structure that may be protected by Teflon, polyethylene or other elastic covering. The structure therefore has ~~the~~ a silica core in the center, and an outer "coating," with nano-particles which serve as both spacers (washers) between the fiber core 100 and the outer coating, and as 'bearing rollers[[.]]" (ball bearings).

Please replace paragraph [00088] with the following paragraph:

[00088] In another embodiment, an optical fiber core has a hydrophilic surface that is covered by resin foam ~~with~~ contains "dry lubrication," for example, molybdenum disulfide and hydrophobic silica nano-particles. Such a resin foam may be created by cyano-acrylate and/or other adhesives with organic solvents and fillers (silica, aluminum, silver powder, etc.). This porous structure ~~that~~ may be further protected by Teflon, polyethylene or other elastic covering.

Please replace paragraph [00089] with the following paragraph:

[00089] In another embodiment, an optical fiber core has a hydrophilic surface that is covered by resin foam with "dry lubrication," for example, molybdenum disulfide and hydrophobic silica nano-particles. The resin foam may be created by evaporation of the adhesive organic solvents and may include nano-particles of silica, aluminum nano-

powder, etc. This structure ~~that~~ may be protected by Teflon, polyethylene or other elastic covering.

Please replace paragraph [00090] with the following paragraph:

[00090] In another embodiment, an optical fiber core has a hydrophobic surface that is covered by resin foam with "dry lubrication", for example, molybdenum disulfide and hydrophobic silica nano-particles. The resin foam may be created by evaporation of adhesive organic solvents and may include nano-particles of silica, aluminum powder, etc. This structure ~~that~~ may be protected by Teflon, polyethylene or other elastic covering. Evaporation may be accomplished by heating using, for example, a high-frequency electromagnetic field.

Please replace paragraph [00091] with the following paragraph:

[00091] In still another embodiment, an ~~An~~ optical fiber core ~~with~~ has a hydrophobic or hydrophilic surface that is covered by resin foam with "dry lubrication", for example, molybdenum disulfide and hydrophobic silica nano-particles. Such foam may be created by gas released during the chemical reaction and polymerization of the adhesive that takes place surrounded by ~~of~~ the fiber glass core surface. This structure ~~that~~ may be protected by Teflon, polyethylene or other elastic covering.

Please replace paragraph [00093] with the following paragraph:

[00093] It is worth noting that hydrophobic nano-particles typically have a small adhesion to glass fiber surfaces and distribute along the ~~corn~~ core due to mutual repulsion

of these similarly charged particles. The charging results ~~of~~ from the interaction with filling and/or outer covering ~~from~~ of Teflon, polyethylene or special adhesive compositions.

Please replace paragraph [000104] with the following paragraph:

[000104] It should be noted that when it is desirable to dispense with a filler material altogether, electrostatic adhesion may be used. In this case (using the two dissimilar nano-particle layers example[[,]]) where the overall structure includes silica core/metallic oxide nano-particles/silica nano-particles, the silica core is charged negatively, the metallic oxide nano-particles in the inner cladding ~~layer~~ region are charged positively, and the silica nano-particles in the outer cladding layer are charged negatively. Thus, without any requirement for a filler material, the overall fiber will be highly stable, since the static charge is trapped in the materials.